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# SYNTHESIZING THEORY INTO INTELLIGENCE GAMES



# How can we improve the design of games related to intelligence analysis?



# How Are Games Often Designed ?

A subjective process:

- Trial and error
- What feels right
- “I know a good game when I see it”



# The Results?

The results can vary from very good to mediocre:

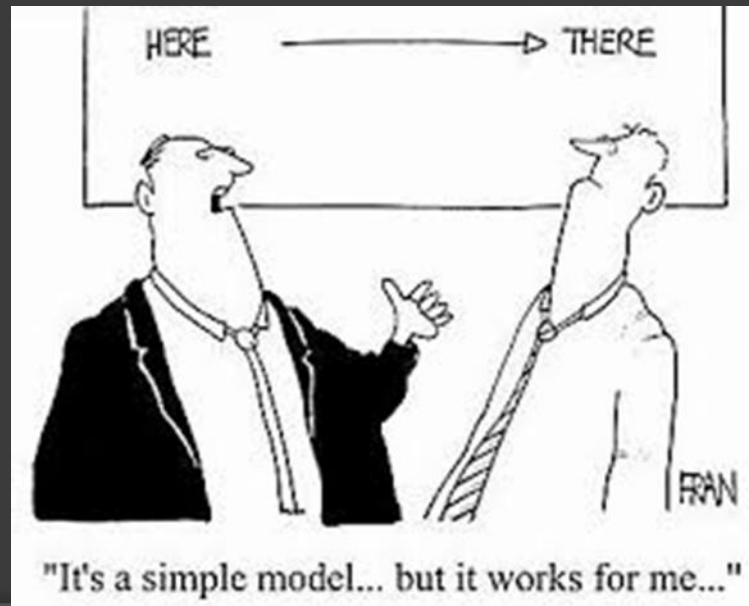
- Trial and error takes time
- Subjective analysis can involve personal preference and bias



# How Can We Improve the Quality of Intelligence Games?

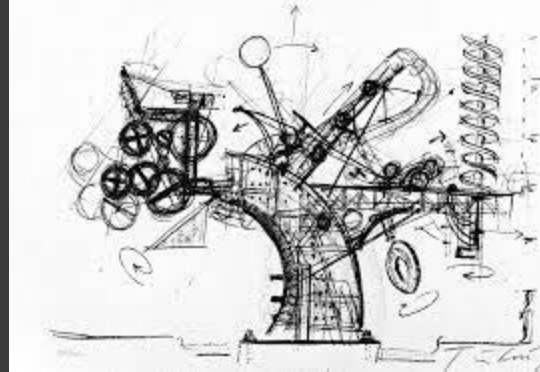


# By synthesizing theory into game design.



# Three Steps

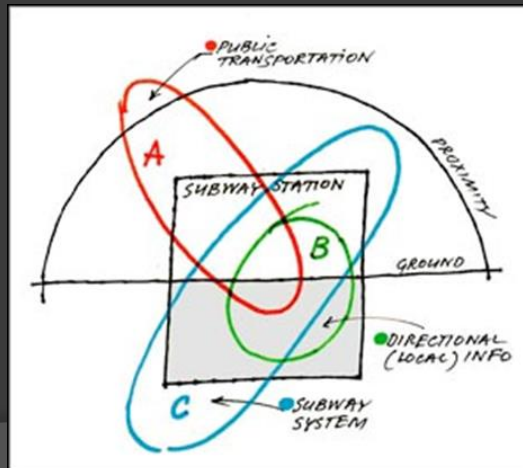
- Define your objectives
- Establish the theoretical basis for your game design



- Seek multiple centers of gravity

# 1. Define Your Objectives

- You need to determine the objective of your game.
- You must be able to explain what you do and how you do it.
- This allows you to focus the outcomes.





# Outcomes

- The outcome is not how the game turns out but meeting your design objectives.
- Focusing on predictable or positive outcomes can result in faulty conclusions.

SIGMA 64: When outcomes fail to meet expectations.



## 2. Establishing a Theoretical Basis for Your Design

Foundational:

- Theories that will support the entire design

Specific:

- Theories that help to sharpen the focus of your design.

# Examples of Theory

- **Andragogy:** Adult learning theory
- **Decision Theory:** Choice under uncertainty, sequential decision making
- **Apohenia/Pareidolia Theory:**  
Misperception of patterns

# Seek Multiple Centers of Gravity in Game Design

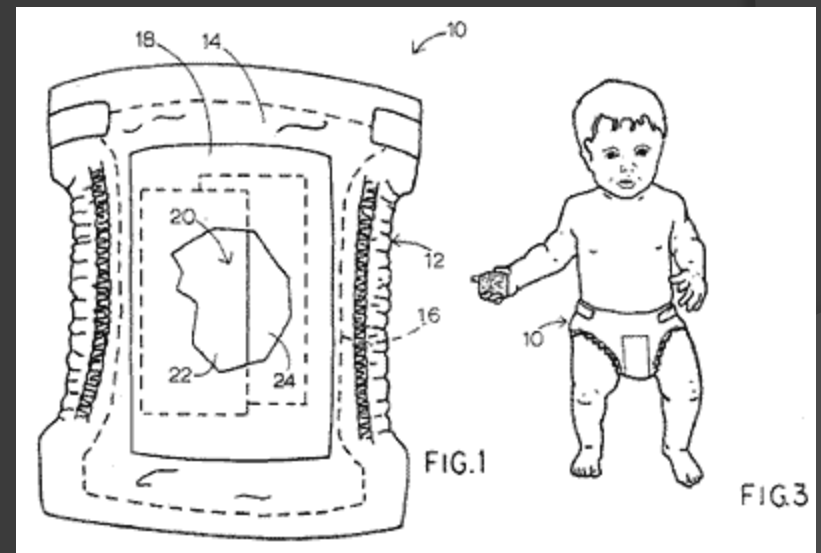
- Outcomes can be enriched by influencing multiple centers of gravity.



# What Are The Centers of Gravity?

What is important to your system?:

- Processes unique to your system
- Agents within your system
- Decision makers who impact your system
- Compelling attractors





Case Study

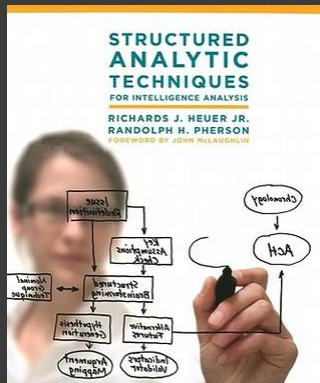
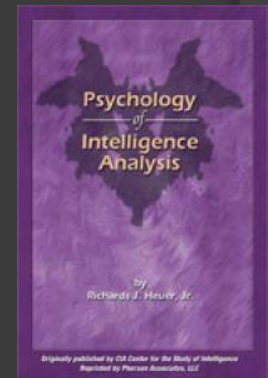
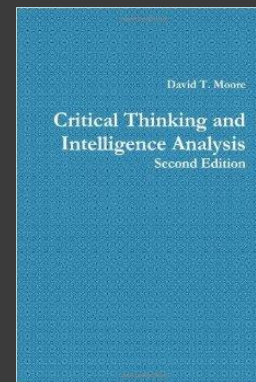
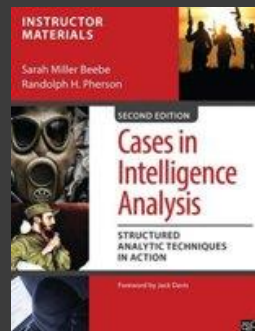
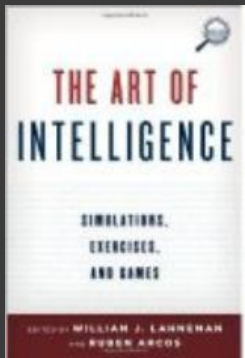
# Designing an Intelligence Analysis Game

# Defining the Objective

- ⦿ What is the purpose of the game?
- ⦿ What will it Include?
- ⦿ What outcomes are we seeking?

# Reviewing the Literature

## What do the subject matter experts say?





# Objective

- There is a large field of information about how to improve intelligence analysis.
- What about a game to introduce new analysts to the discipline?

# Defining Objectives

- Introduce how intelligence is collected and analyzed.
- Include basic concepts and terms related to the topic.
- Design a game system for multiple players using cooperative play.

# What Theories Will Support This?

- **Learning Theory**

Situated cognition: Providing the players learning contexts based on real life processes

- **Decision Theory**

Recognition primed decision making  
Bounded rationality

# Game System

Players are divided into six teams representing a type of intelligence gathering discipline. Each team has special capabilities related to their type of intelligence capacity.

- HUMINT
- GEOINT
- TECHINT
- CYBINT
- SIGINT
- MASINT

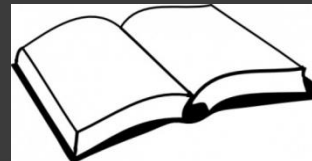
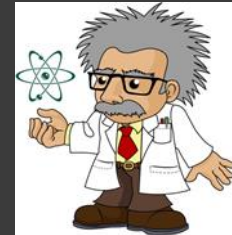
# Map

- The map has nine nodes. These nodes represent types information. By uncovering the information in each node the player determines the threat this node represents.



# Toolbox

- Each team has special assets in the form of toolbox tiles. These tiles represent intelligence gathering/analysis techniques or processes: Red Hat team, Tiger team, academic experts, social media/open source analytics.



# Tension

- As players uncover information in each node they also discover factors which impact the escalation level. They must constantly balance gathering new information against managing the level of escalation.



# Threat Estimate

- As the individual threats (terrorism, WMDs, cyberwar etc) within the various nodes are uncovered the players can begin to develop estimates of what the greatest threat is.
- The game ends with the players moving to the center threat node using their estimates to uncover the actual threat.



# Game Outcomes

- Players were introduced to intelligence analysis concepts
- They had to work together using a combination of assets and capabilities to uncover emerging threats
- They had to develop a threat assessment based on their analysis of the available data.

# Multiple Centers of Gravity

- ⦿ Learning about process of intelligence analysis
- ⦿ Social learning and team decision making
- ⦿ Decision making during uncertainty
- ⦿ Balancing multiple objectives

# LECMgt Design Team

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